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Jing Zhu

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EXAMINER

HAILU, KIBROM T

ART UNIT

PAPER NUMBER

2616

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/816,434

Applicant(s)

ZHU ET AL.

Examiner

Kibrom T. Hailu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 31 March 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-29 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Objections*

1. Claims 13 and 16 are objected to because of the following informalities:

The claims recite "chipset". It is not clear what is claimed because it is not found or explained in the specification. Appropriate correction is required.

### *Claim Rejections - 35 USC § 101*

2. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3. Claims 17-23 are rejected under 35 U.S.C. 101 because the claims are directed to non-statutory subject matter.

The claims are non-statutory because the applicant claims "machine-accessible medium having content to provide instructions to cause an electronic system to:..." not being executed by an executing device as claimed does not produce useful concrete and tangible result [see MPEP 2106.01]. The instructions have to be executed in order perform the claimed limitations indicated. Appropriate correction is required.

### *Double Patenting*

4. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re*

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*Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

5. Claims 1, 13, 17 and 24 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 7, 8, 12 and 18 of U.S. Patent No. 10/879766. Although the conflicting claims are not identical, they are not patentably distinct from each other.

In the instant application, the claims 1, 13, 17 and 24 relate to method, system, apparatus and article to automatically adapt or form carrier threshold based on a device's measured carrier sense threshold and received threshold from other devices in the network. Whereas claims 1, 7, 8, 12 and 18 of the copending application relates to method, system, apparatus and article to generate and adapt (form or modify) parameter value form the device's measured parameter value and collected or received value from other devices or nodes in the network, and this would be an obvious variation.

The claims of each application contain the same conceptual limitations using slightly different wording. A person of ordinary skill in the art would interpret parameter value of the copending application the same as the carrier sense (transmission) thresholds of the instant (current) application.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the method, system, apparatus, and article of manufacture of

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the current application where adapting or modifying parameter value based on the measure and received parameter values, as shown in 10/879766, since the remaining elements perform the same functions.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. Claims 1-2, 4, 6-7, 13-14, 17-18, 20, 22-25 and 27-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Whitehead (US 6,157,616) in view of Tuch et al. (US 5,220,564).

**Regarding claims 1, 2 and 6**, Whitehead discloses a method comprising: measuring a communication channel characteristic for a local wireless network node (col. 1, lines 22-62, illustrates a station determines condition of the transmission or communication channel. For example, a station listens to determine whether the channel is clear for transmitting, distinguish noise signals data intended to be received, and determines that another transmitter is geographically close so that starting another packet would interfere with the packet already in

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progress. In other words a station measures and senses the transmission channel before starting transmitting. Note also that determining SNIR and/or SNR for a channel is well known in the art, e.g. see Jacobsen (US 7,321,614), col. 6, line 66-col. 7, line 3); determining a local transmission threshold based on the channel characteristic (col. 3, lines 14-30; col. 3, line 58-col. 4, line 8; col. 4, lines 50-56; col. 6, lines 41-48, explains the carrier sense threshold or transmission control parameter is set or determine based on the characteristic or condition of the transmission channel, thus dynamically adjusting the threshold value based on the condition in the channel).

As applied above, Whitehead discloses dynamically adjusting the carries sense threshold based on the characteristic of the channel. However, Whitehead doesn't explicitly disclose receiving a transmission threshold from a remote network node; and adjusting automatically the hardware settings of the local wireless network node based on the local transmission threshold and the received transmission threshold; selecting the lower of the local transmission threshold and the received transmission threshold, and adjusting the hardware settings to make the wireless network node responsive to the selected transmission threshold.

Tuch teaches receiving a transmission threshold from a remote network node (col. 1, lines 62-64; col. 4, lines 36-40, explains the receiver 42 receives the receive signal level or threshold from other stations to compare with the threshold currently stored in the threshold value register134); and adjusting automatically the hardware settings of the local wireless network node based on the local transmission threshold and the received transmission threshold (col. 5, lines 52-62; col. 6, lines 26-54; col. 7, lines 44-48; col. 8, lines 13-33, etc., illustrates automatically adjusting the circuitry to dynamically adjust the threshold value based on the received threshold from other stations and currently stored on the register); and selecting the

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lower of the local transmission threshold and the received transmission threshold, and adjusting the hardware settings to make the wireless network node responsive to the selected transmission threshold (col. 5, lines 42-51).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use receiving the transmission (receive) signal level or threshold from another station and automatically adjust the hardware settings to minimum threshold or level of the station based on the station's determined transmission threshold and received from another station as taught by Tuch into the adaptive transmission of Whitehead in order to provide circuitry which enables a high throughput performance, and alleviate multipath fading which may arise in some environments.

**Regarding claims 4 and 7**, as applied above, Whitehead discloses determining transmission threshold based on the condition of the communication medium or channel. However, Whitehead doesn't disclose transmitting the threshold to another stations or nodes and adjusting the threshold and/or the hardware setting based on the thresholds.

Tuch teaches transmitting the threshold to another station or node, and adjusting the threshold and/or the hardware setting based on the thresholds (col. 6, lines 26-54).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate transmitting the threshold to all of the stations adjusting based on the plurality of the thresholds as taught by Tuch into the adaptive transmission of Whitehead so that the unitization of a dynamically adjustable threshold enables multi-network usage of the transmission channel without throughput loss.

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**Regarding claims 13 and 14**, the claims include features corresponding to subject matter mentioned above in the rejected claims 1 and 2. The claims are mere reformulation of claims 1 and 2 in order to define the corresponding system and apparatus. Sensitivity sensing level is simply the dynamically adjusting or fluctuation of the carrier sense threshold, and this is addressed in the rejection to claims 1 and 2, thus applicable hereto. Also, see Whitehead, col. 5, lines 12-19.

**Regarding claim 17**, the claim includes features corresponding to subject matter mentioned above in the rejected claim 1. The claim is a mere reformulation of claim 1 in order to define the corresponding an article of manufacture. The rejections to claim 1 are applied hereto.

**Regarding claim 18**, which inherits claim 17, includes features corresponding to subject matter mentioned above in the rejected claim 2. The claim is a mere reformulation of claim 2 in order to define the corresponding an article of manufacture. The rejections to claim 2 are applied hereto.

**Regarding claim 20**, which inherits claim 17, includes features corresponding to subject matter mentioned above in the rejected claim 4. The claim is a mere reformulation of claim 4 in order to define the corresponding an article of manufacture. The rejections to claim 4 are applied hereto.

**Regarding claim 22**, which inherits claim 17, includes features corresponding to subject matter mentioned above in the rejected claim 6. The claim is a mere reformulation of claim 6 in order to define the corresponding an article of manufacture. The rejections to claim 6 are applied hereto.



**Regarding claim 23**, which inherits claim 17, includes features corresponding to subject matter mentioned above in the rejected claim 7. The claim is a mere reformulation of claim 7 in order to define the corresponding an article of manufacture. The rejections to claim 7 are applied hereto.

**Regarding claims 24 and 25**, the claim includes features corresponding to subject matter mentioned above in the rejected claims 1 and 2. The claim is a mere reformulation of claims 1 and 2 in order to define the corresponding an apparatus. The rejections to claims 1 and 2 are applied hereto.

**Regarding claim 27**, which inherits claim 24, includes features corresponding to subject matter mentioned above in the rejected claim 4, and the rejections are applied hereto.

**Regarding claim 28**, which inherits claim 24, includes features corresponding to subject matter mentioned above in the rejected claim 6, and the rejections are applied hereto.

9. Claims 3, 16, 19 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Whitehead in view of Tuch, as applied above to claims 1, 13, 17 and 24, and further in view of Foore et al. (US 6,911,948 B2).

**Regarding claim 3**, as applied above, the modified adaptive transmission of Whitehead discloses determining transmission threshold. However, the modified transmission of Whitehead doesn't explicitly disclose the determining transmission threshold is physical carrier sense.

Foore teaches determining the physical carrier sense (col. 2, lines 28-34).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use physical carrier sense as taught by Foore into the modified adaptive

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transmission of Whitehead in order to easily determine the state of the communication medium or channel, such as busy or idle.

**Regarding claim 16**, which inherits claim 13, includes features corresponding to subject matter mentioned above in the rejected claim 3, and the rejections are applied hereto.

**Regarding claim 19**, which inherits claim 17, includes features corresponding to subject matter mentioned above in the rejected claim 3. The claim is a mere reformulation of claim 3 in order to define the corresponding an article of manufacture. The rejections to claim 3 are applied hereto.

**Regarding claim 26**, which inherits claim 24, includes features corresponding to subject matter mentioned above in the rejected claim 3, and the rejections are applied hereto.

10. Claims 5, 15, 21 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Whitehead in view of Tuch, as applied to claims 1, 13, 17 and 24 above, and further in view of Moteki et al. (US 5,960,005).

**Regarding claim 5**, as applied above, the modified adaptive transmission of Whitehead discloses adjusting the hardware settings of the local wireless network node or station. However, the modified adaptive transmission of Whitehead doesn't disclose the adjustment is performed at periodic intervals and the settings remain constant throughout the interval.

Moteki teaches the adjustment is performed at periodic intervals and the settings remain constant throughout the interval (col. 8, lines 51-58).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use performing adjustment at periodic intervals and the settings remain constant throughout the interval as taught by Moteki into the modified adaptive transmission of

Whitehead so that factors varying over a passage of time can be effectively and efficiently tracked to carry out an appropriate level adjustment.

**Regarding claim 15**, which inherits claim 13, includes features corresponding to subject matter mentioned above in the rejected claim 5, and the rejections are applied hereto.

**Regarding claim 21**, which inherits claim 17, includes features corresponding to subject matter mentioned above in the rejected claim 5. The claim is a mere reformulation of claim 5 in order to define the corresponding an article of manufacture. The rejections to claim 5 are applied hereto.

**Regarding claim 29**, which inherits claim 24, includes features corresponding to subject matter mentioned above in the rejected claim 5, and the rejections are applied hereto.

11. Claims 8, 9 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tuch et al. (US 5,220,564) in view of Diepstraten et al. (US 5,553,316).

**Regarding claim 8**, Tuch discloses a network element comprising: a receiver (42) to receive a carrier sensing signal from source network element (one of stations 12)(Fig. 1 and 3, col. 1, line 45; col. 2, lines 47-51; col. 7, line 59, illustrates receiving signal from one of the stations), and to receive from a neighboring network element a signal having a physical carrier sense (PCS) characteristic of the neighboring network element (Figs. 1, 10-14; col. 1, lines 48-54, 62-66; col. 7, lines 62-68, explains receiving receive signal level or threshold provided from the received signal of another station in the network. As provided in claim 3, physical carrier sense (PCS) is well known in the art e.g. Foore (US 6,911,948), col. 2, lines 28-34); a transmitter (46) to transmit a PCS characteristic determined for to the network element (col. 3, lines 13-23; col. 1, lines 51-54; col. 1, line 46; col. 7, line 60); a processor (threshold level circuit 62) coupled

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with the receiver and the transmitter, to process the received carrier sensing signal and determine a PCS characteristic for the network element and update the PCS characteristic based at least in part on the PCS characteristic determined for the network element and the received PCS characteristic of the neighboring network element (Figs. 3 and 6; col. 8, lines 13-14; col. 2, lines 1-2; col. 5, lines 18-51, 8-11, explains the threshold level circuit 62 processes the received signal from another station and provide receive signal level or threshold and updates and/or adjusts the threshold value based on the received receive signal level of the other stations and the current threshold value of the station); and hardware control circuitry to set the hardware PCS threshold to the value of the updated PCS characteristic (col. 5, lines 52-62; col. 6, lines 26-54; col. 7, lines 44-48; col. 8, lines 13-33, etc., illustrates automatically adjusting the circuitry to dynamically adjust the threshold value based on the received threshold from other stations and currently stored on the register).

Tuch doesn't explicitly disclose the carrier sense threshold value of the station is determined based at least in part on the signal to noise ratio of the received carrier sensing signal.

Diepstraten teaches the carrier sense threshold value of the station is determined based at least in part on the signal to noise ratio of the received carrier sensing signal (col. 3, lines 58-67; col. 4, lines 14-31, 52-66; col. 5, lines 3-11; col. 6, lines 16-29; col. 7, lines 17-45; col. 10, lines 41-44; col. 2, lines 57-63).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use determining the carrier sense threshold value based on the signal to noise of the received signal as taught by Diepstraten into the wireless transmission of Tuch so that a station will defer its transmission until a medium is sensed to be available for transmission,

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thus avoid collision and increase efficiency of the transmission medium, reuse and effective sharing of the transmission medium bandwidth can be achieved.

**Regarding claim 9**, Tuch discloses transmitter (46) transmits the determined PCS characteristic to neighboring nodes in the wireless network (col. 6, lines 26-54).

**Regarding claim 12**, Tuch discloses the processor determines the updated PCS threshold based on selecting the lower of the PCS characteristic determined for the network element and the received PCS characteristic of the neighboring network element (col. 5, lines 42-51).

12. Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tuch in view of Diepstraten, as applied to claim 8 above, and further in view of Moteki et al. (US 5,960,005).

As applied above, Tuch discloses the receiver (42) to receive the PCS characteristic from the neighboring network element comprises the receiver to receive transmission from other stations in the networks (col. 6, lines 26-54) and hardware control circuitry sets the hardware carrier sense threshold (col. 5, lines 52-62; col. 6, lines 26-54; col. 7, lines 44-48; col. 8, lines 13-33). However, Tuch doesn't disclose transmit from a centralized control node that receives and distributes PCS characteristics for multiple nodes of the network, and set the threshold at periodic intervals and does not alter the hardware PCS threshold setting during the interval.

Moteki teaches transmit from a centralized control node that receives and distributes PCS characteristics for multiple nodes of the network (col. 2, lines 41-67; col. 8, line 50-col. 9, line 35), and set the threshold at periodic intervals and does not alter the hardware PCS threshold setting during the interval (col. 8, lines 51-58, illustrates the adjustment is constantly periodic).

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Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was to use receiving and transmitting carrier level to and from the central device to and from plurality of stations or terminals, and adjust the threshold periodically as taught by Moteki into the transmission control of Tuch so that factors varying over a passage of time can be effectively and efficiently tracked to carry out an appropriate level adjustment.

### *Conclusion*

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kibrom T. Hailu whose telephone number is (571)270-1209. The examiner can normally be reached on Monday-Thursday 8:30AM-6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Q. Ngo can be reached on (571)272-3139. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

KTH  
02/12/08

  
RICKY Q. NGO  
SUPERVISORY PATENT EXAMINER